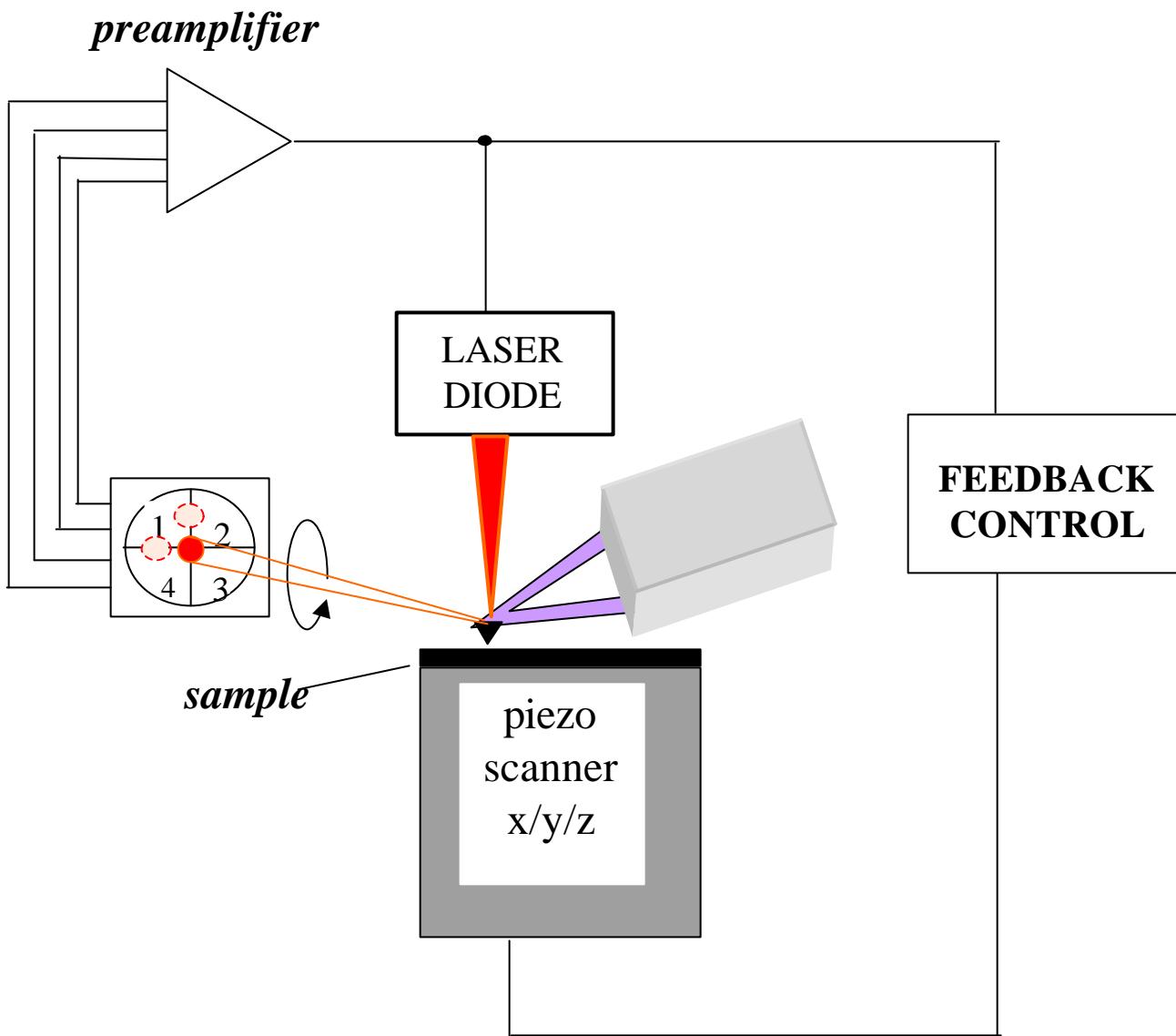
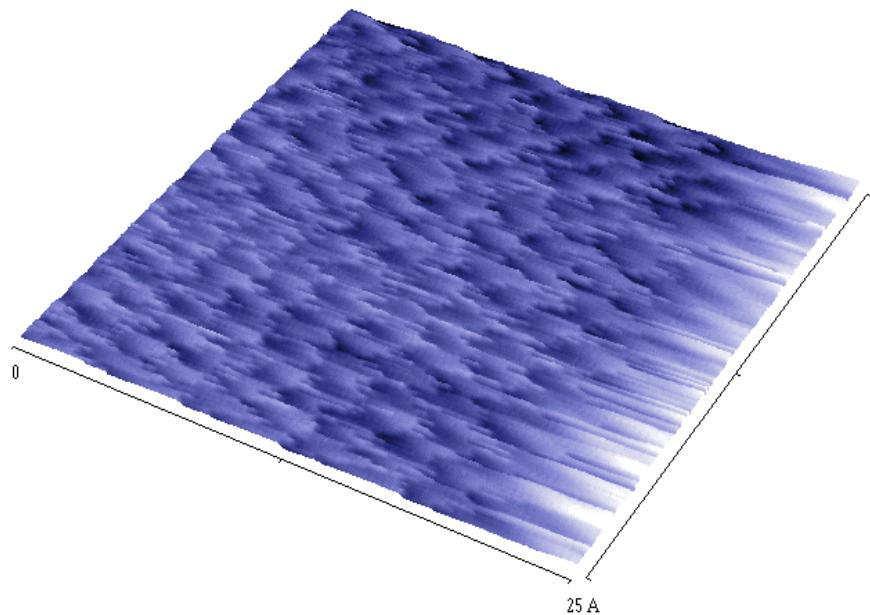
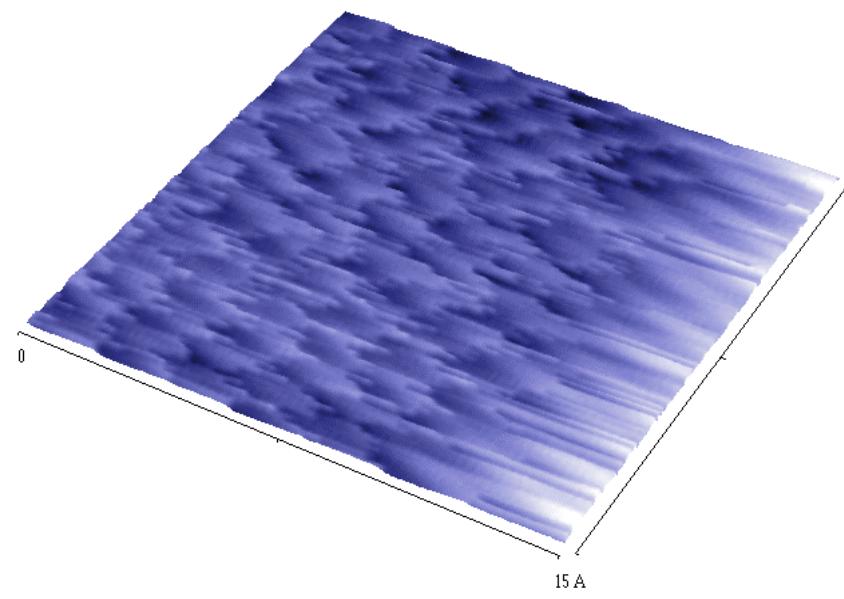

AFM – SCHEMATIC PRINCIPLE



ATOMIC RESOLUTION ON HOPG



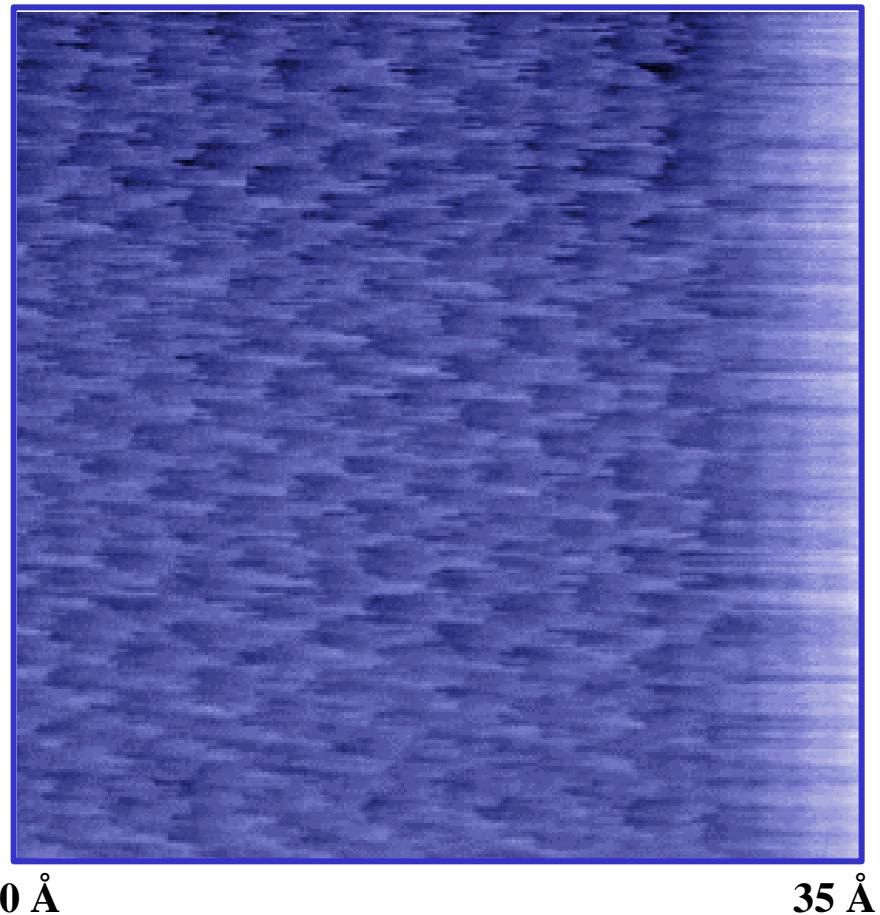
25Å x 25Å



15Å x 15Å

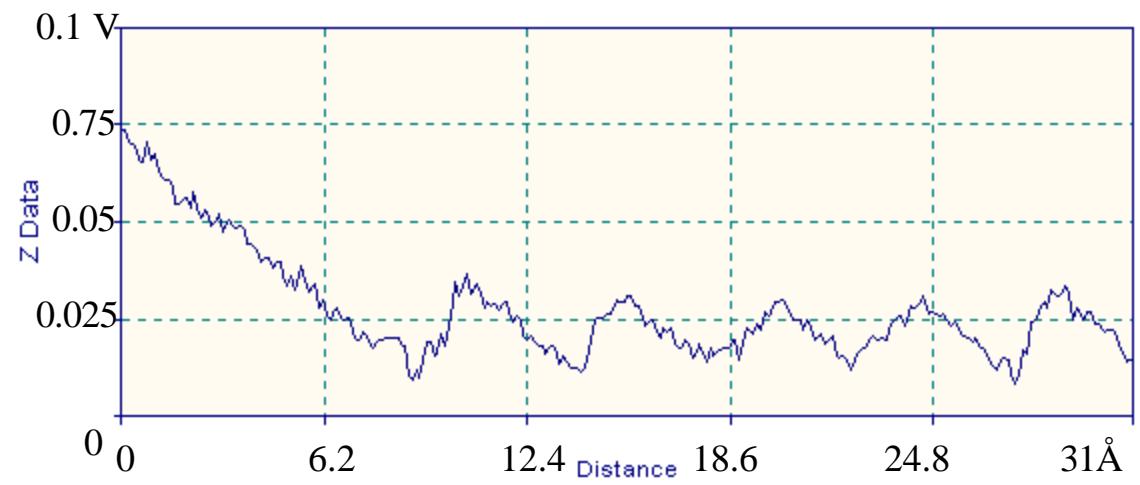
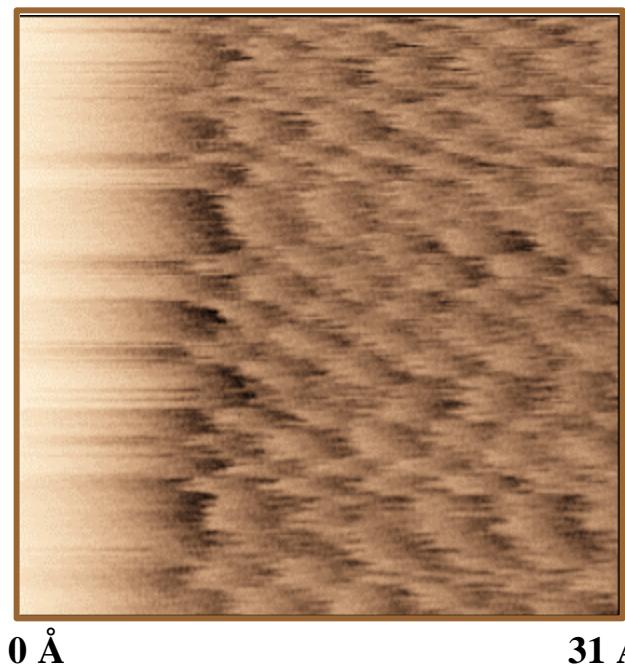
Atomic lattice constant = 2.46 Å

ATOMIC RESOLUTION ON MICA



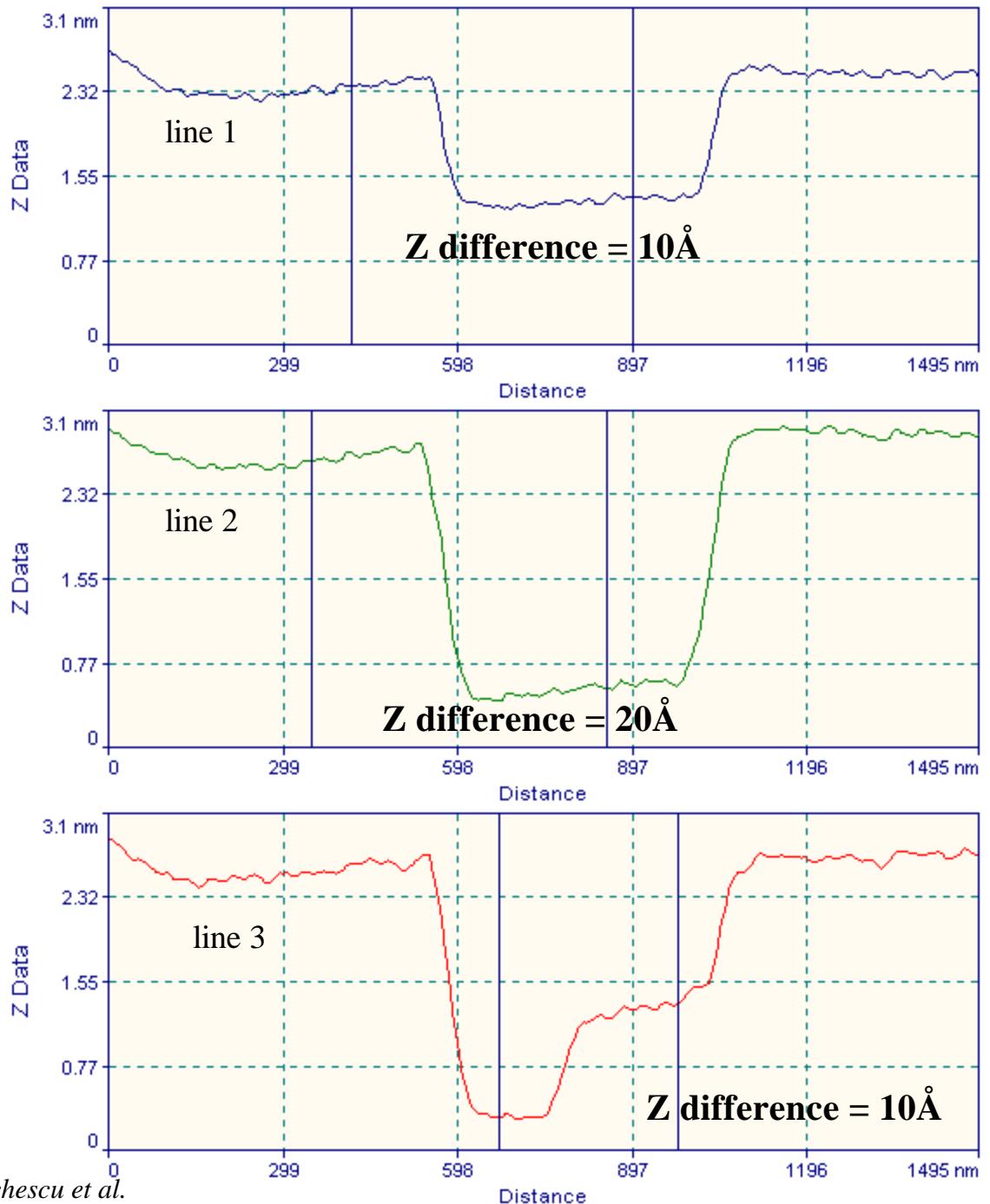
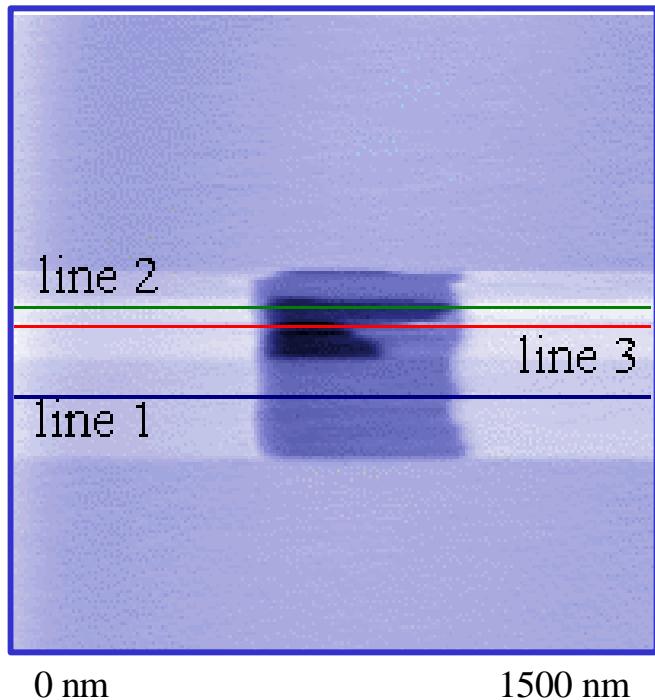
Atomic lattice constant = 5.2 Å

ATOMIC “STICK-SLIP”

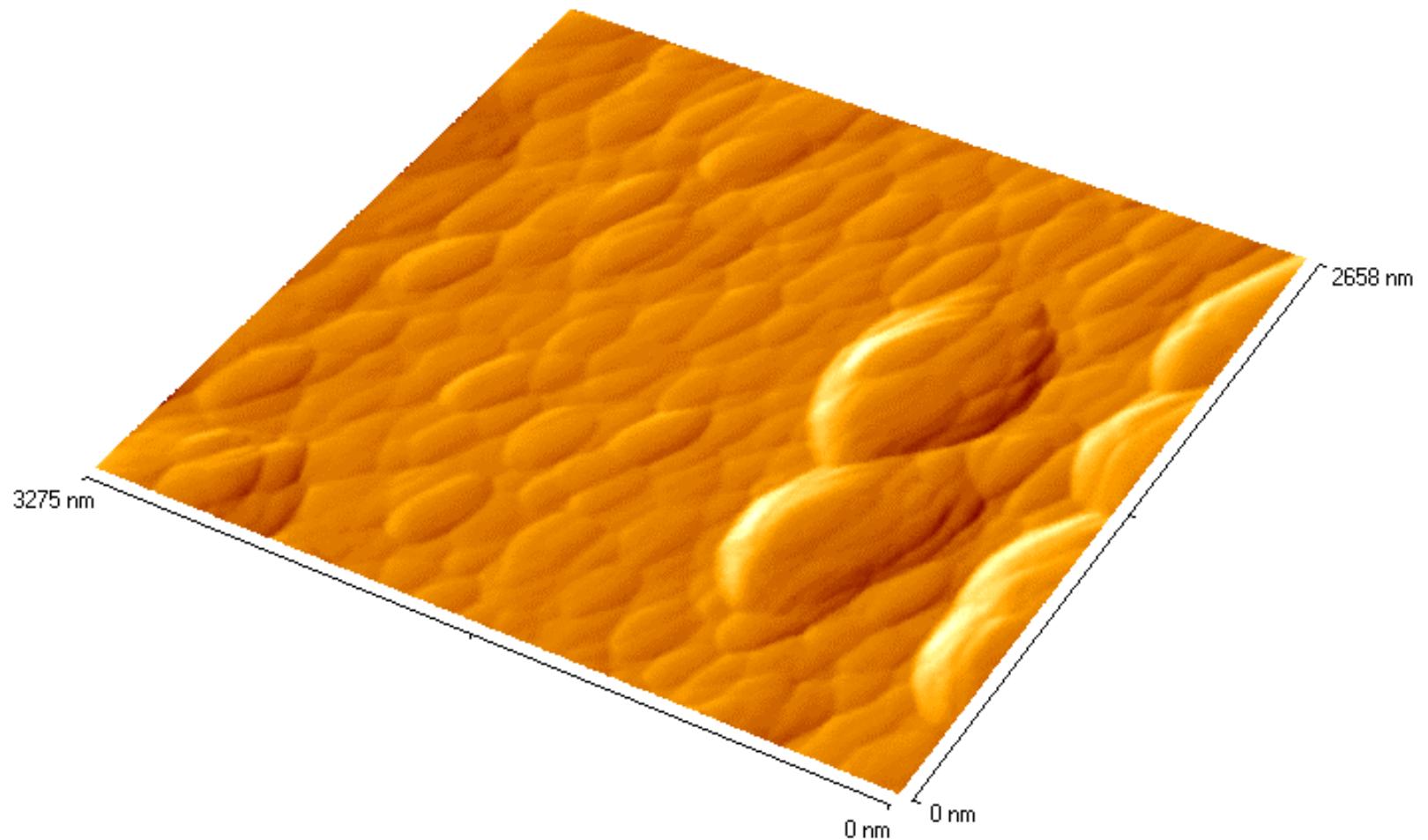


Atomic “stick-slip” profile

DIGGING ATOMIC-SCALE HOLES



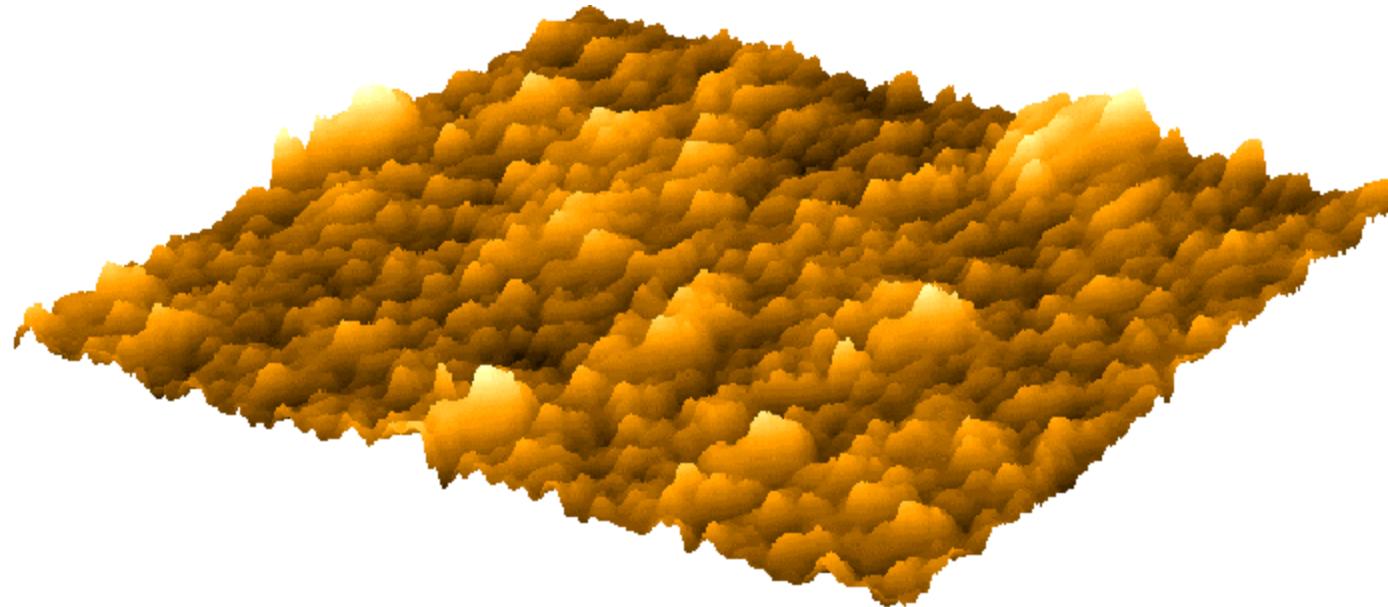
AFM contact image of BaTiO₃ surface



AFM contact image of ZnO:CuO/Si surface

35 minutes rf reactive magnetron sputtering from Zn+2%Cu target in pure oxygen

Film thickness ~100 nm

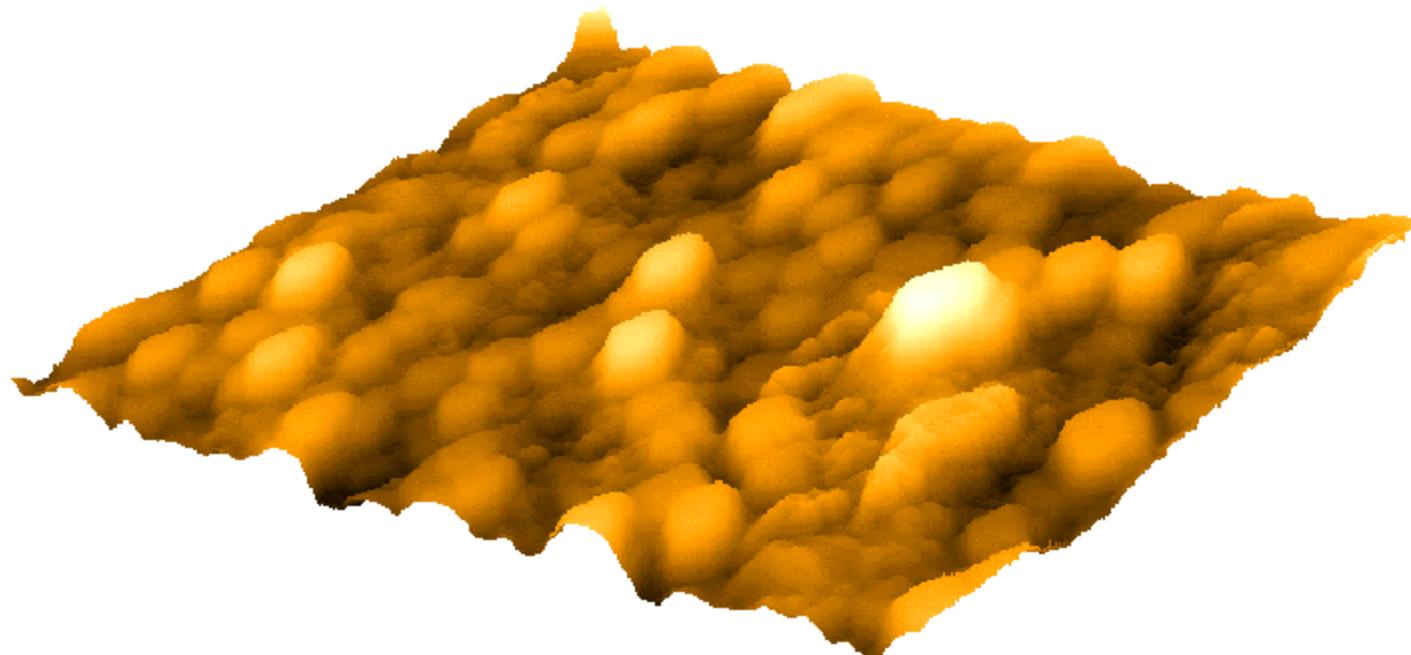


6 μm x 6 μm; RMS=10.46 nm

AFM contact image of ZnO:CuO/Si surface

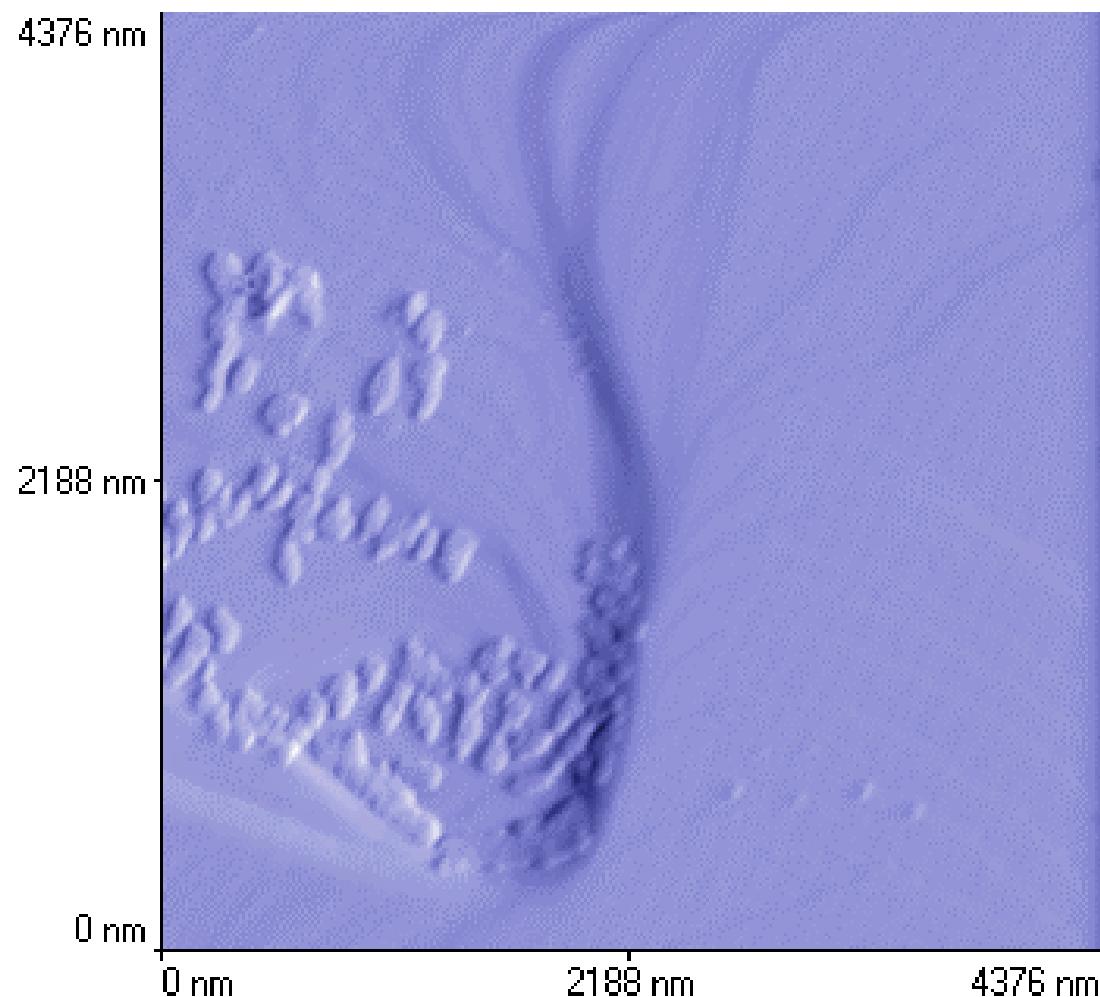
5 hours rf reactive magnetron sputtering from Zn+2%Cu target in pure oxygen

Film thickness ~1000 nm



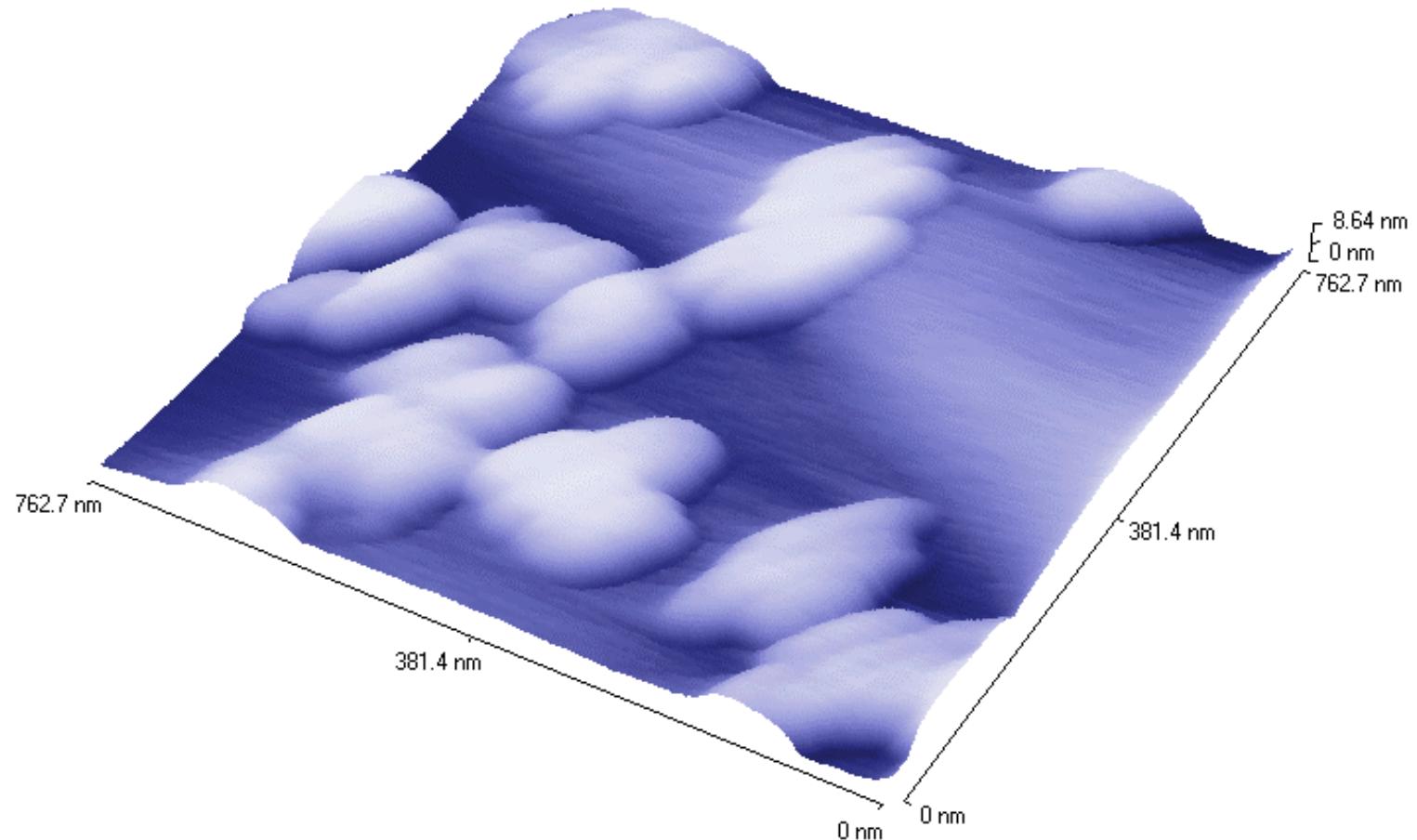
6 μm x 6 μm; RMS=10.42 nm

Atomic dislocations – deposition location of Ag nano-clusters onto KCl

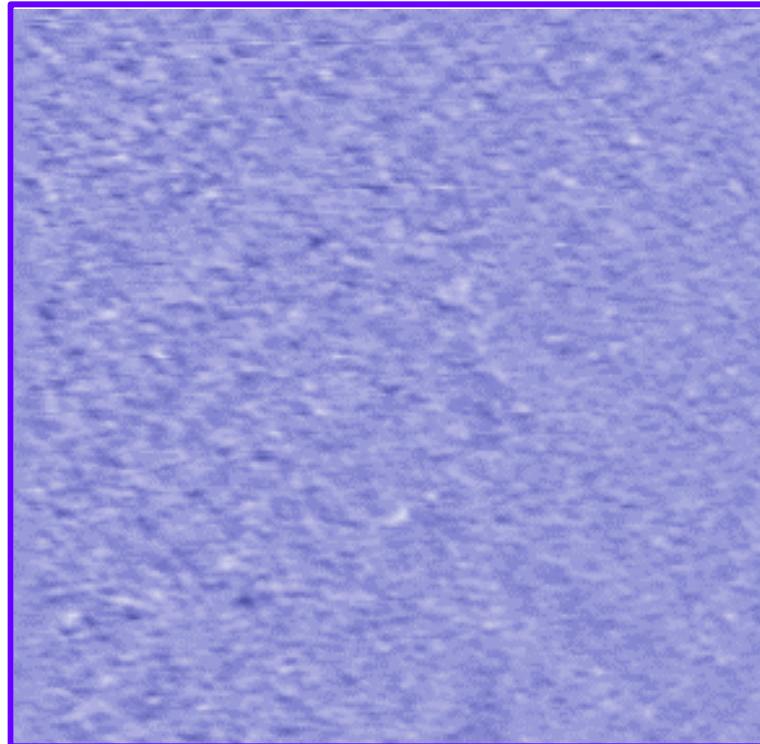


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Ag nano-clusters onto KCl



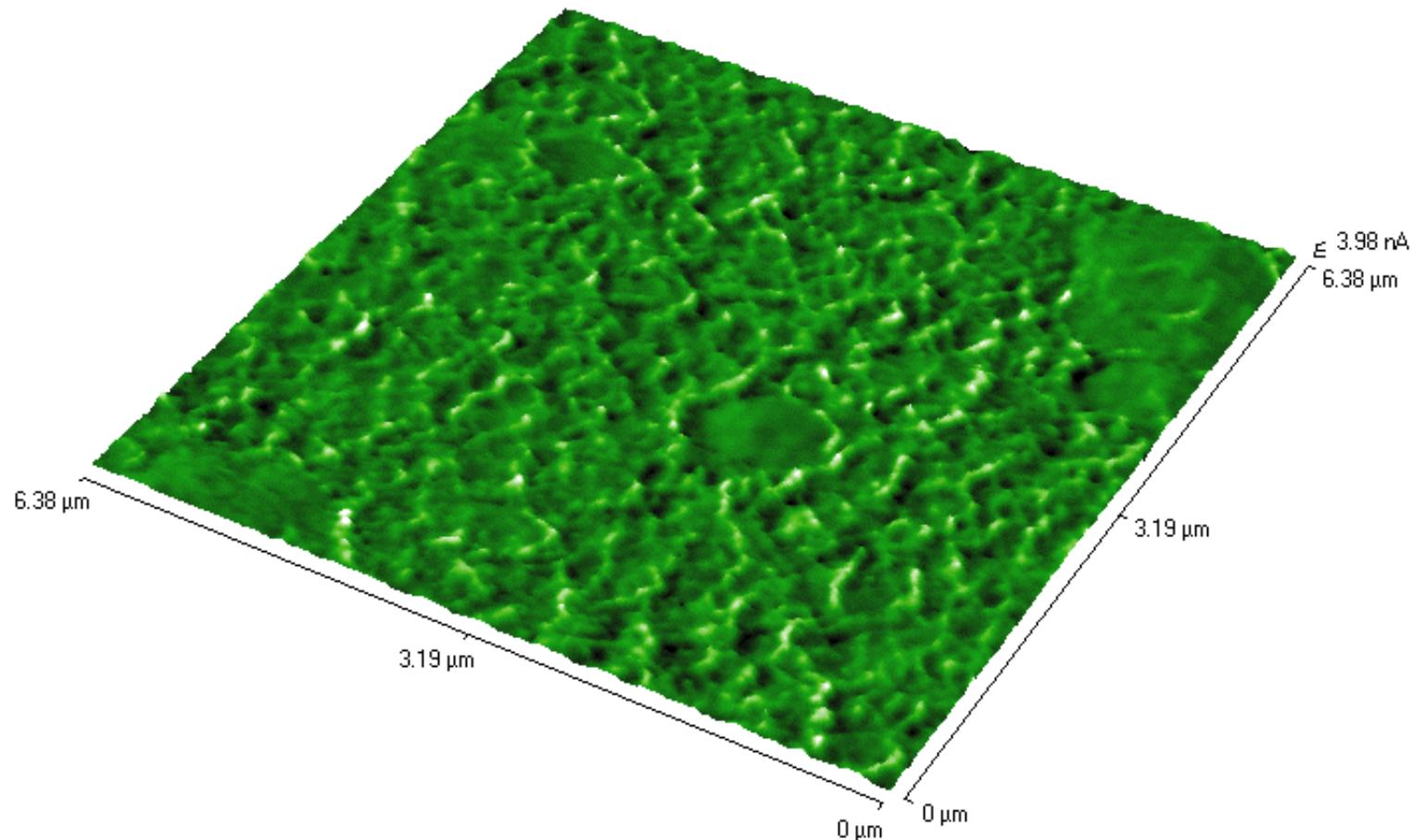
Mirrors for X-UV domain – C-Ni multilayer structure (32)



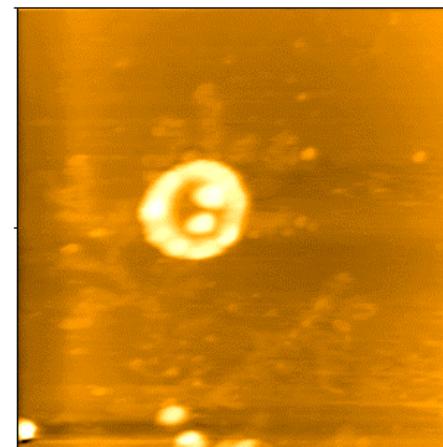
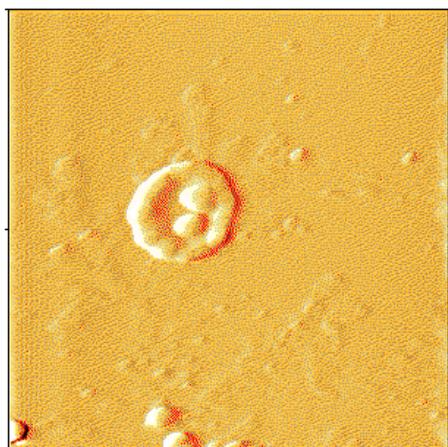
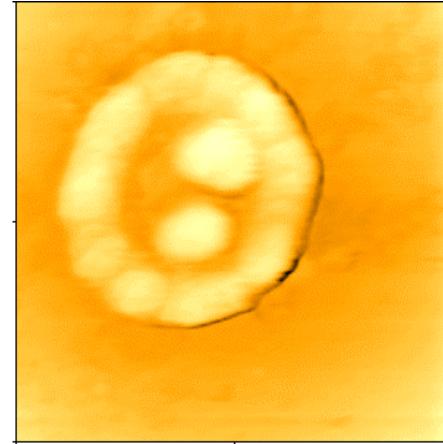
0 mm

9.3 mm

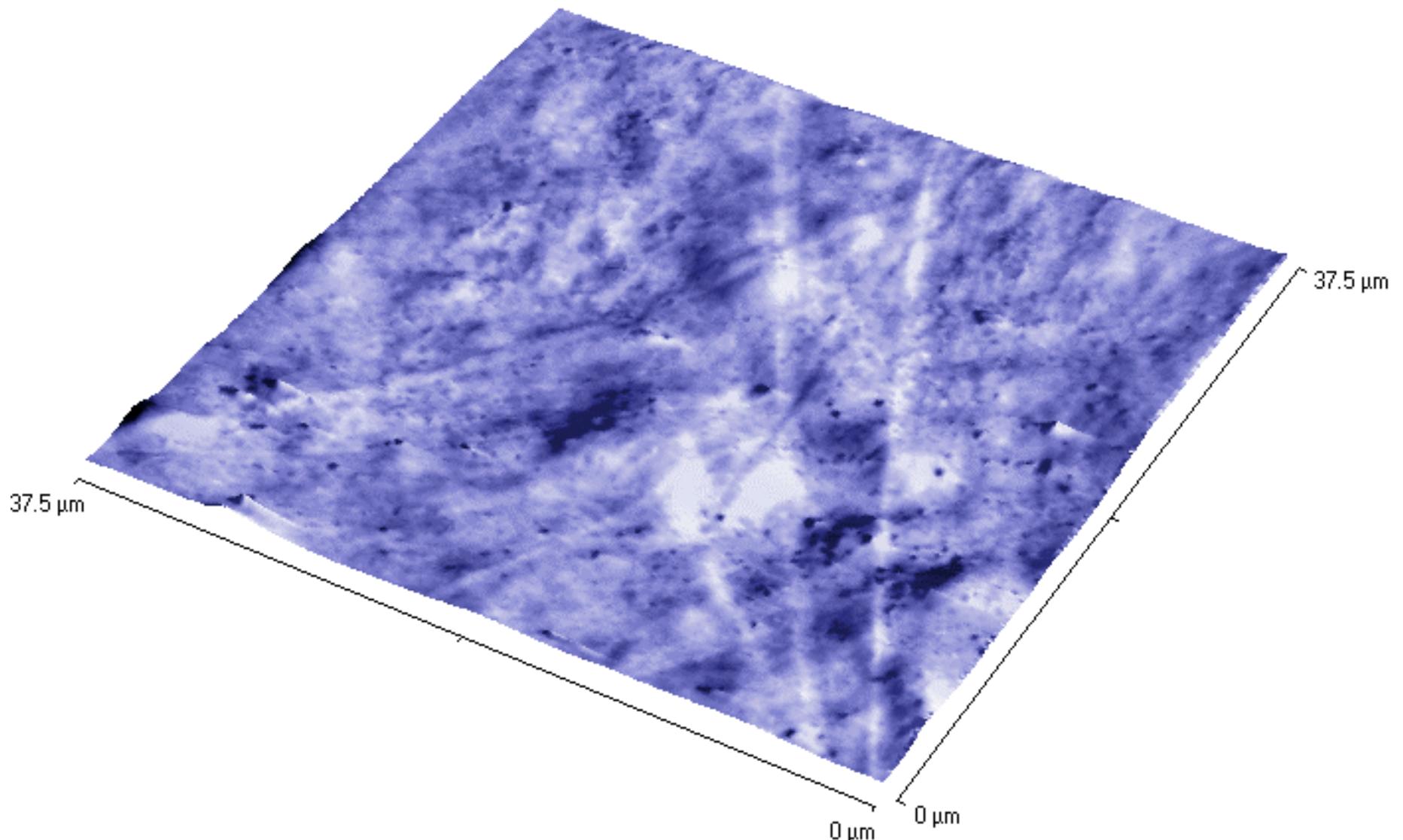
Chlorophyll



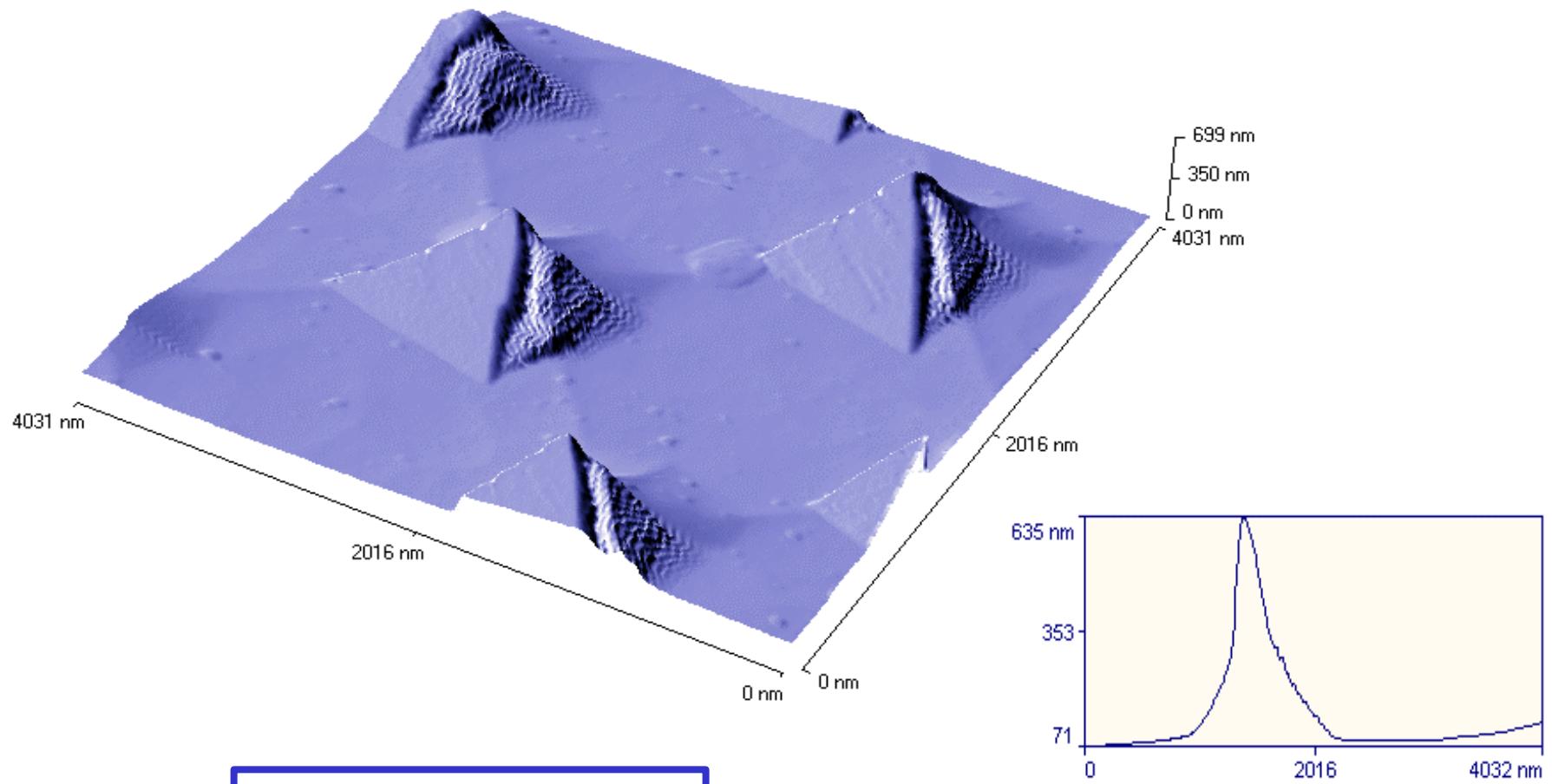
Human Erythrocytes onto Mica surface



AFM contact image of a Polyurethane surface



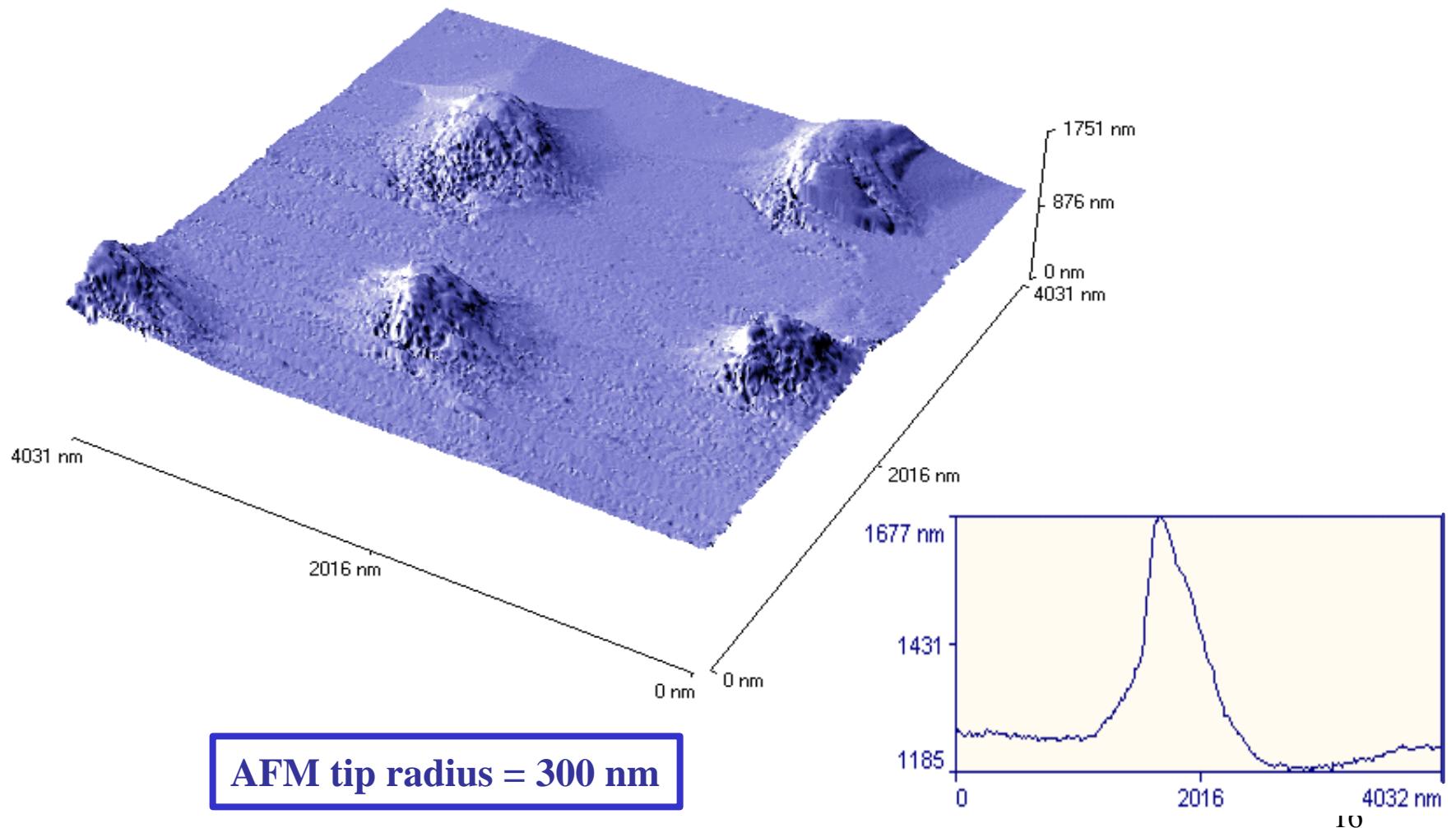
Measuring AFM tip radius



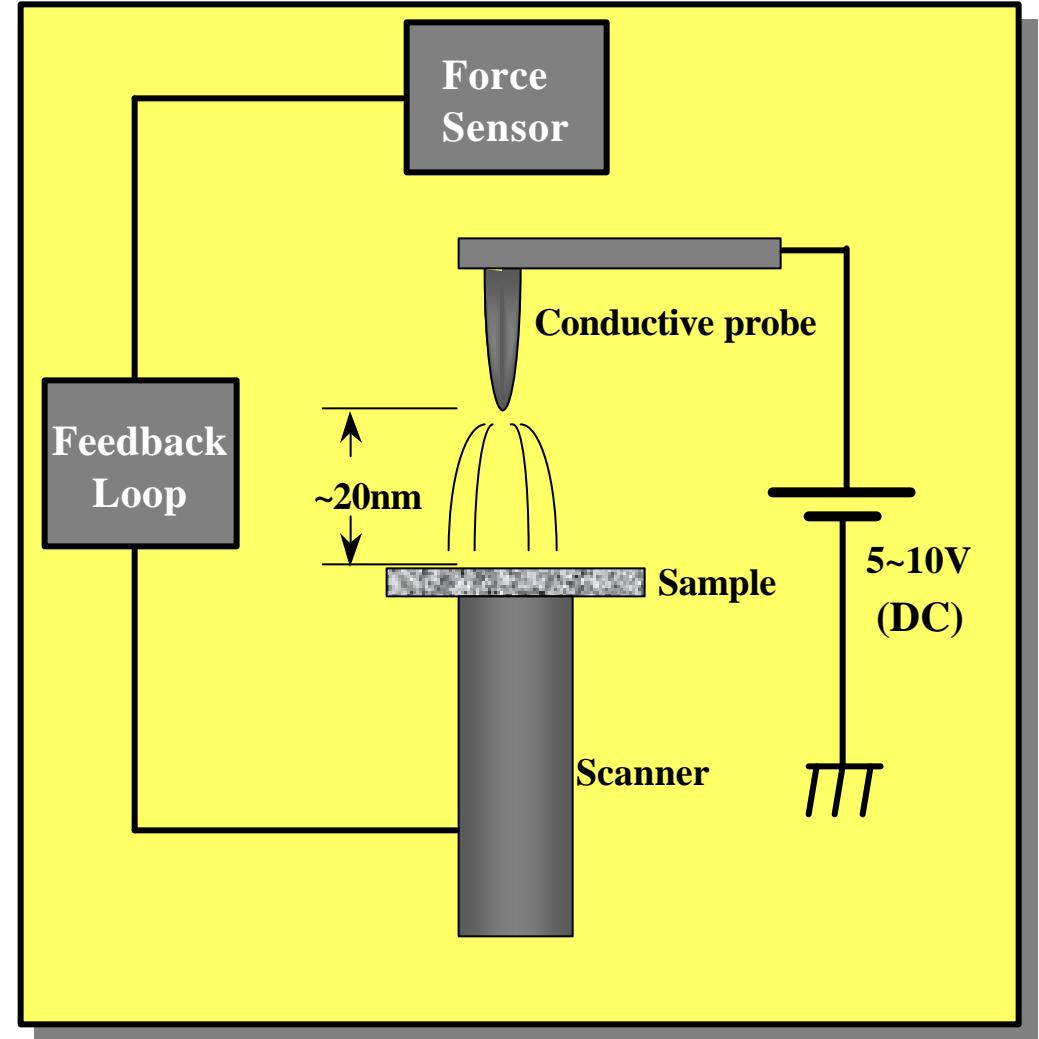
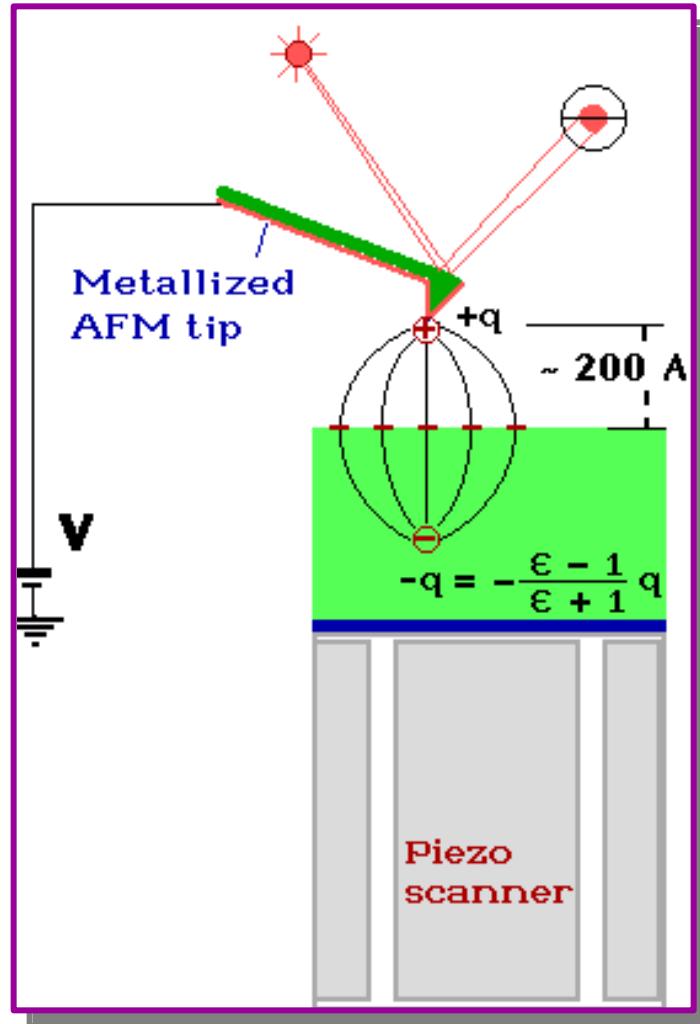
AFM tip radius = 25 nm

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Measuring AFM tip radius



Scanning Polarization Force Microscopy (SPFM)

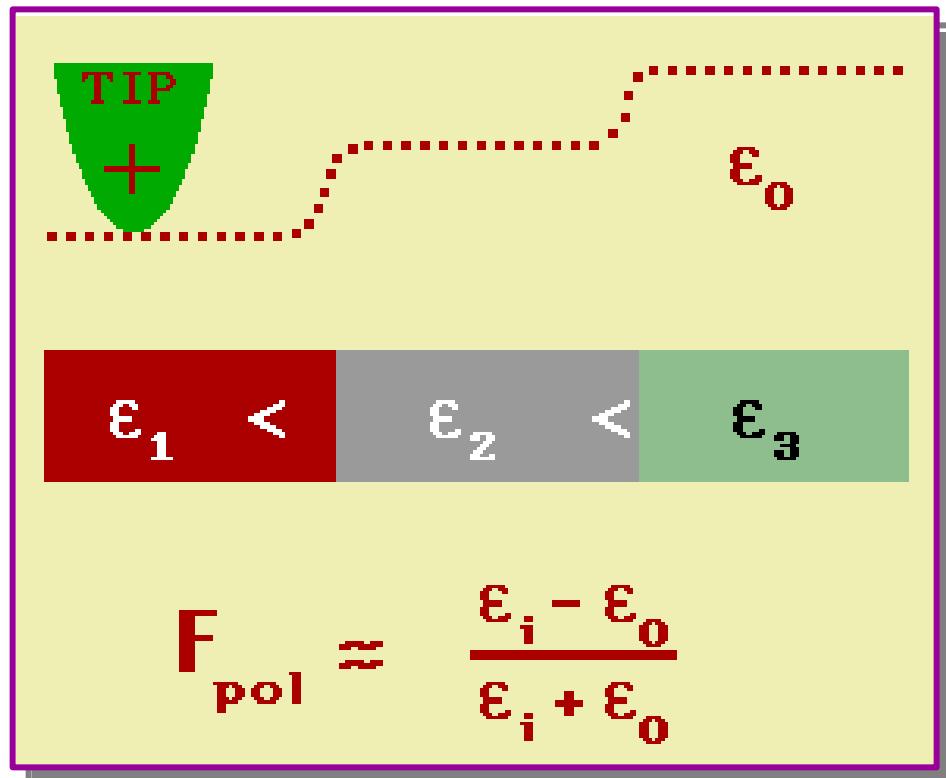


Scanning Polarization Force Microscopy (SPFM)

Image Contrast

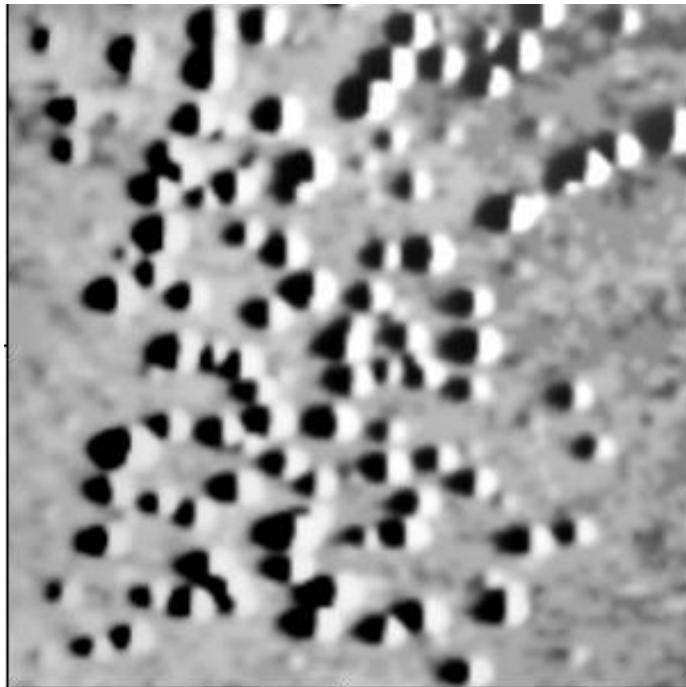
$$F = -4pe_0 \cdot \frac{e-1}{e+1} \cdot f\left(\frac{R}{z}\right) \cdot (V_{tip} - V_{sample})^2$$

When $e \gg 1$, F is insensitive to e .

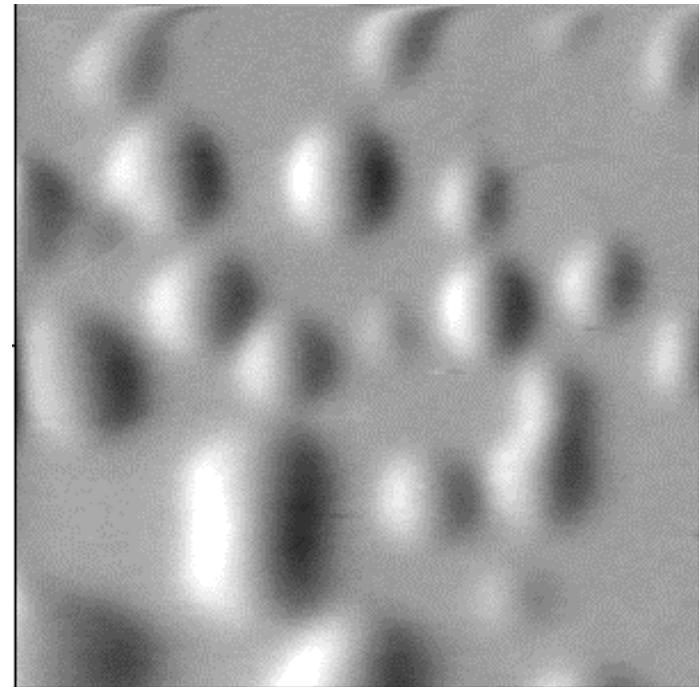


“TOUCHING” Liquid Surfaces - Glycerol

Results of SPFM-DC implemented technique



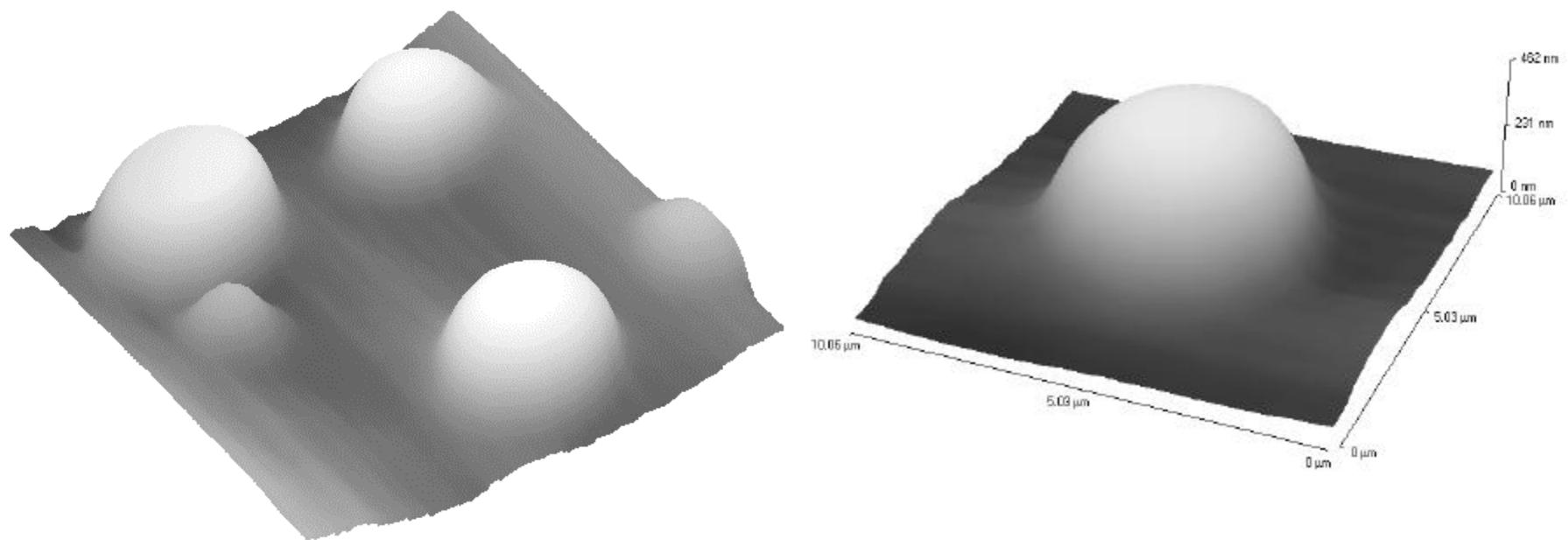
18,7mm x 18,7mm



9mm x 9mm

Study of Glycerol Droplets

Results of SPFM-DC implemented technique



5mm x 5mm; imagine 3D

2,5mm x 2,5mm; imagine 3D

Ferroelectrics – lithium hidroselenide

